Balancing dairy production and profits in northern Australia

Queensland Dairy Accounting Scheme - 2014

Dairy Australia
Your Levy at Work

Queensland Government

Balancing dairy production and profits in northern Australia

QDAS Financial and production trends – 2014

Compiled by

Ray Murphy
Gordon Simpson

Department of Agriculture, Fisheries and Forestry 2014

Department of Agriculture, Fisheries and Forestry

This publication has been compiled by Ray Murphy and Gordon Simpson of Animal Science, Department of Agriculture, Fisheries and Forestry.

Data enquiries should be addressed to:
Ray Murphy
Department of Agriculture, Fisheries and Forestry
203 Tor Street
PO Box 102
TOOWOOMBA QLD 4350
Australia
Phone +61 7 4688 1094
Fax +61 7 4688 1477
Email: ray.murphy@daff.qld.gov.au

Introduction

This report contains physical and financial data from 63 farms and includes data from the South East Coastal, Darling Downs, Central Queensland and North Queensland dairy regions (Figure 1).

Milk production in Queensland decreased by 24 millions litres from 457 millions litres in 2012-13 to 433 million litres in 2013-14. This decrease is reflected in a 5% decrease in farm numbers from 510 in 2012-13 to 485 in 2013-14. Table 1 shows the trend in milk supply and farm numbers for Queensland over the last four years.

In 2013-14 Australian milk production was 9.2 billion litres with Queensland contributing 4.7% of this.

Figure 2 shows Queensland's monthly milk production for 2012-13 and 2013-14.

A thorough analysis of Queensland dairy businesses can be undertaken by reviewing performance using four business traits – liquidity, profitability, solvency and efficiency. These traits cover both the financial and physical aspects of the business.

Section 1 of this report presents a summary of the key findings. Three business traits – profitability, solvency and efficiency were used to measure farm performance. The results for these traits are presented using 15 key performance indicators.

Section 2 examines 10 years of cash income and costs.

Section 3 displays the distribution of QDAS (Queensland Dairy Accounting Scheme) data for cow numbers, land area, labour, production, receipts, costs and profitability.

Section 4 details the characteristics of the most profitable farms in QDAS. Production per cow, the effect of herd size and milk from home grown feed are examined.

Regional production system statistics are summarised in Section 5 and are then examined individually in Sections 6 to 9.

Appendices contain summary reports for all QDAS farms, the top 25% farms and each regional production system. The appendices also contain a list of definitions for the business traits and key performance indicators used in QDAS.

Figure 1. The location of dairy farms in Queensland

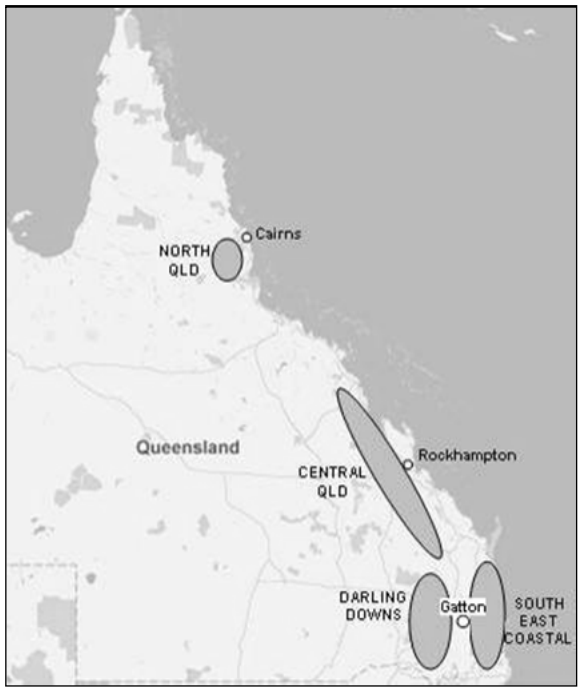
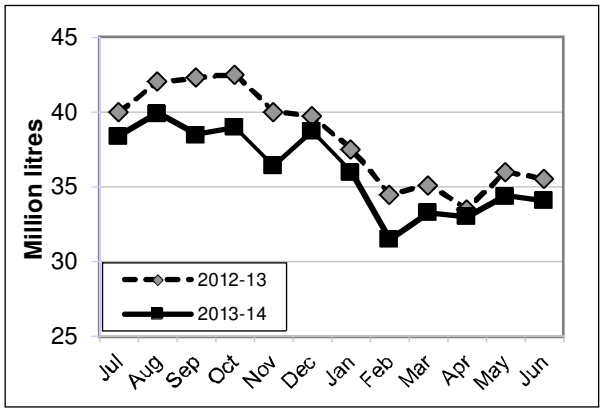


Table 1. Dairy farm numbers and annual milk production for Queensland (2010-11 to 2012-14)

	Farms	Annual production
2010-11	566	485 m L
2011-12	548	485 m L
2012-13	510	457 m L
2013-14	485	433 m L

Figure 2. Queensland monthly milk production (2012-13 and 2013-14)



Objectives

The objectives of this book are to:

- Provide QDAS participants with a summary of physical and financial data from each regional production system. This, together with their own farm reports, will give dairy farming families/enterprises information that will enable them to make more informed business decisions.
- Act as a resource guide for local advisers, consultants and other industry service personnel who wish to encourage positive change.
- Provide background material for industry participants negotiating with banks, governments, suppliers or other agents.

About QDAS

QDAS was established to improve the understanding of business principles among advisors and dairy farmers by providing farm management accounting and analysis. Originally the basis of the analysis was an examination of the annual variable costs. The data was used to answer questions such as "is the production of an extra unit of milk profitable". QDAS has evolved to now examine the business traits of profitability, solvency and efficiency but still maintains a similar aim to help dairy farmers make informed decisions based on business information.

Officers of the Department of Agriculture, Fisheries and Forestry supervise the collection and processing of data between August and November.

Farmer participation in QDAS is voluntary and free. Results and trends need to be interpreted carefully as QDAS farms have larger herds and produce more milk per farm than the Queensland average.

Acknowledgements

The authors wish to thank all cooperating farmers who supplied data and provided valuable feedback in discussion groups held during late 2014.

The authors also acknowledge the support and efforts of the following people for their assistance with data collection:

Howard Smith
Belinda Haddow
Carmel Barrie

Thanks to Bradley Blackwood for the use of his photo on the cover of this report.

QDAS is a project of the Department of Agriculture, Fisheries and Forestry (DAFF) and is co-funded by DAFF and Dairy Australia.

Ray Murphy
Senior Scientist – Dairy Farm Business Management

Department of Agriculture, Fisheries and Forestry
December 2014

Contents

Tables

Figures

1. 2013–14 Key findings

Fifteen Key Performance Indicators (KPI) are used to highlight the results for profitability, solvency and efficiency. Table 2 shows these results for 2013-14 and the preceding three years. Further to this is the calculation of these KPI for the top 25% of farms. These top farms have been identified as the farms with the highest dairy operating profit measured in dollars per cow.

Dairy operating profit highlights the amount of profit retained after paying all expenses except finance costs and taxes. These expenses include the non-cash items of depreciation and an allowance for the manager's time and skill (called imputed labour). Cattle trading profit and inventory adjustments are also included.

Table 2 has been presented to show the general industry trend. The participating farms have not been selected randomly. If using this data to compare with an individual farm situation, consideration needs to be given to the individual's position in the business lifecycle, personal goals, farming system and asset base.

Table 2. Financial and performance ratios for QDAS farms (2010-11 to 2013-14)

Business traits and indicators[1]	**Top 25%**	**QDAS average**	**Past QDAS averages**		
Profitability	**2013-14**	**2013-14**	**2012-13**	**2011-12**	**2010-11**
Return on assets managed (%)	4.7	1.2	1.4	2.5	na
Return on assets owned (%)	6.1	1.4	1.6	2.9	2.7
Return on equity (%)	5.4	-0.3	-0.2	1.4	1.4
Operating profit margin (%)	21.7	6.1	7.7	14.1	14.1
Dairy operating profit ($/cow)	852	212	247	482	471
Solvency					
Equity (%)	78	81	81	82	83
Debt to equity ratio	0.29	0.23	0.23	0.22	0.21
Efficiency – Capital/Finance					
Asset turnover ratio	0.28	0.23	0.21	0.21	0.19
Total liabilities per cow ($)	3,101	2,773	2,856	2,937	3,050
Interest paid/cow ($)	182	186	206	232	236
Efficiency – Productivity					
Feed related costs (c/L)	28.2	30.8	26.8	26.2	26.5
Margin over feed related costs (c/L)	28.1	23.5	24.5	27.3	27.0
Total variable costs (c/L)	31.5	34.6	30.7	29.8	30.2
Gross margin - milk ($/cow)	1,539	1,163	1,200	1,383	1,341
Efficiency – Physical					
Production per cow (L)	6,214	5,927	5,833	5,858	5,789
Litres per labour unit					
- On farms <1.0 m L	382,500	335,874	301,030	299,579	290,952
- On farms >1.0 m L	519,478	470,132	478,436	450,953	477,611

[1] The definition of each indicator and how it is calculated can be found in Appendix 10.9

Profitability

The profitability of Queensland dairy farms has declined slightly to a historically low level. Dairy operating profit per cow has decreased by $35 to be $212 in 2013-14. This is the lowest dairy operating profit per cow result that QDAS has on record.

Drought has been the key factor to the low profitability, affecting farmers in two ways. Firstly, by reducing feed production on farms and therefore increasing the volume of feed being purchased. Secondly, the increase in demand for feed from drought effected beef properties across Queensland and the reduced supply of available feed has increased the unit price of feed. Table 3 shows the trend in some feed prices.

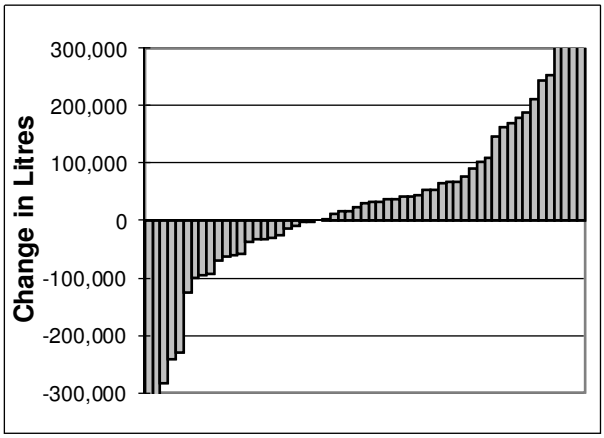
The effect of the increase in feed costs has been partially offset by a 2.9 c/L increase in milk receipts. This increase was due to a combination of higher base prices, bonuses and a reduction in the amount of milk paid at tier two prices.

Production and prices

While Queensland's milk production decreased by 24 million litres in 2013-14, primarily due to farm numbers decreasing by 25, the average milk production of QDAS farms has increased by 53,125 litres to 1,359,696 litres. This was due to a combination of increases in cow numbers and production per cow.

The milk production changes on individual farms are more varied with four QDAS farms increasing production by more than 300,000 litres and two farms decreasing production by more than 300,000 litres. Figure 3 shows the changes in milk production between 2012-13 and 2013-14 for individual QDAS farms.

Figure 3. Change in milk production on individual farms between 2012-13 and 2013-14

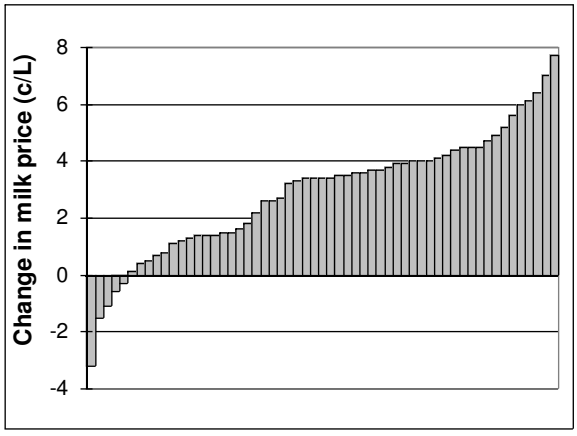


QDAS average milk receipts (milk price) increased by 2.9c/L. North Queensland saw the largest increase with milk receipts increasing by 3.8c/L from 48.6 c/L to 52.4c/L. However, the North Queensland milk receipts figure is still the lowest of all the regional production systems. Darling Downs TMR farms received a 2.0c/L increase in milk receipts. Figure 4 shows the changes in average milk receipts per litre between 2012-13 and 2013-14 for individual QDAS farms.

Production per cow

Production per cow increased slightly from 5,833 litres in 2012-13 to 5,927 litres in 2013-14. South East Coastal grazing farms recorded a 408 litre increase in production per cow while the Darling Downs TMR farms recorded a 401 litre decrease. The high cost of purchased feed and the decrease in the amount of stored silage meant Darling Downs TMR farms were choosing strategies to reduce feed costs and stretch silage supplies which caused a reduction in production per cow.

Figure 4. Change in average milk receipts on individual farms between 2012-13 and 2013-14



Production costs

Feed related costs increased by 4.0 c/L, from 26.8 c/L in 2012-13 to 30.8 c/L in 2013-14. The change in feed related costs is primarily due to a 3.4 c/L increase in the cost of purchased feeds. The price of grains, protein and other concentrates increased dramatically in the last four months of 2012-13 and remained at these high levels for all of 2013-14. Table 3 shows the prices of major farm inputs, including the dramatic increase in concentrate prices. These prices are sourced in southern Queensland and vary depending on contractual arrangements.

Irrigation costs have increased from 0.5 c/L in 2011-12 to 0.8 c/L in 2012-13 and increased again in 2013-14 to 1.1 c/L. This is due to increased electricity charges and the dry conditions.

Herd costs decreased marginally and shed costs increased marginally. Total variable costs, the sum of feed related costs, herd costs and shed costs, increased by 3.9c/L. The margin over feed related costs decreased by 1.0 c/L, from 24.5 c/L to 23.5c/L.

The top 25% group achieved feed related costs of 28.2 c/L (2.6 c/L lower than the QDAS average) and a margin over feed related costs of 28.1 c/L (4.6 c/L higher than the average).

Once again the importance of feed related costs is evident in this year's data, with feed related costs consuming 57% of milk income.

Table 4 shows the cash costs of production for QDAS farms for 2013-14. Tables 6 and 7 show the costs for the last ten years.

Table 3. Indicative prices per tonne of major farm inputs (2013-14)

	June 2011	June 2012	June 2013	June 2014
Concentrates				
Sorghum	$225	$180	$325	$300
Barley	$260	$205	$365	$340
Wheat	$260	$225	$365	$345
Soybean meal	$505	$635	$746	$720
Canola meal	$340	$370	$545	$550
14% dairy pellet	$330	$345	$375	$430
Fertiliser				
Urea	$640	$705	$615	$565
Diesel				
Bowser price	$1.50	$1.45	$1.52	$1.60

TMR farms hit hard

TMR farms grow large amounts of feed in good years and store it to maintain year round production and to ride out the dry times. Unfortunately, a below average summer crop in 2013-14, no winter crop in 2014 and a hot dry start to the 2014-15 summer has resulted in stocks of home grown silage and hay being exhausted. TMR farms have bought by-products such as almond hulls to mix with their home grown silage to make the silage last a bit longer. The cost of buying these by-products, as well as the high price of concentrates has resulted in feed costs increasing dramatically. Compounding this was the need to feed dry and young stock on a full ration for part of the year, due to there being no paddock feed available for grazing.

For TMR farms, feed related costs increased by 6.1 c/L. Further to this is a $34,350 (which equates to 1.8 c/L) decrease in stored feed inventories, primarily silage. Several TMR farms in the QDAS sample recorded a decrease in their feed inventory of more than $100,000.

As a result dairy operating profit for TMR farms is only $44 per cow in 2013-14, down from $646 in 2012-13.

Table 4. Cash analysis of the costs of production (2013-14)

	c/L
Farm receipts	
Milk receipts (Net)	54.2
Other farm receipts	5.2
Total farm receipts	**59.4**
Production costs	
Purchased feed	22.8
Home grown feed	8.0
Total feed related costs	30.8
Herd costs	2.1
Shed costs	1.8
Administration	2.5
Repairs & maintenance	3.4
Employed labour	5.9
Farm working expenses	**46.4**
Interest, principal, lease	7.0
Owners labour	5.9
Total cash costs	**59.3**
Surplus / Deficit	0.1

Labour

Average paid labour costs are $79,821 for 1.4 labour units. This is a $9,748 increase from the previous year. As farms milk more cows there are opportunities to utilise labour more effectively. Table 5 shows that farms producing less than 0.75 m L (106 cows) do so at 313,751 litres per labour unit; whereas farms producing more than 1.75 m L (397 cows) do so at 517,190 litres per labour unit.

Table 5 also shows the increase in labour used, both paid and unpaid (family), as production increases. It is not surprising that the greater than 1.75 m L group has the largest use of paid labour at 3.5 full time equivalents (FTE). This is more than double the paid labour use of the 1.25 m L to 1.75 m L group.

Administration efficiencies

The QDAS average administration cost is $33,548 (2.5 c/L) and repairs and maintenance is $46,498 (3.4 c/L). While administration costs increase as production increases, the costs get proportionately lower per litre. Table 5 shows administration falling from 3.5 c/L to 1.9 c/L as production increases. Administration costs include rates, insurance, registration, office expenses, accounting, levies and telephone.

Repairs and maintenance is 4.2 c/L for the small farms and 3.4 c/L for the largest farms. Interestingly, the 0.75-1.25 mL group had the lowest repairs and maintenance at 2.9c/L.

Table 5. Analysis of administration costs and labour inputs and costs (2013-14)

	<0.75 m L	0.75 – 1.25m L	1.25 – 1.75m L	>1.75m L
Milk production (L)	531,136	990,093	1,423,092	2,709,278
Cows (milkers + dry)	106	188	250	397
Overheads				
Admin ($)	18,702	26,790	38,765	52,590
Admin (c/L)	3.5	2.7	2.7	1.9
Repairs & Maintenance ($)	22,490	29,196	50,763	92,064
Repairs & Maintenance (c/L)	4.2	2.9	3.6	3.4
Labour				
Unpaid labour (FTE)	1.2	1.7	1.8	1.7
Paid labour (FTE)	0.5	0.8	1.5	3.5
Paid labour cost (c/L)	3.4	4.2	6.1	7.1
Litres per labour unit	313,751	397,712	439,066	517,190

2. Farm cash flow over the years

This page shows time series data to calculate operating cash surplus and a cash surplus/deficit from 2004-05 to 2013-14. Milk receipts were highest in 2008-09 at 55.9 c/L. 2006-07 saw feed costs increase with dry seasonal conditions and since then fluctuate with commodity, fuel and fertiliser prices. The 2013-14 result shows feed related costs at 30.8c/L which is the highest of these ten years. Herd, shed, administration, repairs and labour costs have all increased over these ten years.

Since 2004-05 there have been the following increases.

- Purchased feed up 92%.
- Feed related costs up 70%.
- Repairs and maintenance up 55%.
- Total cash costs up 52%.

Figure 5. Total farm receipts and total cash costs from 2004-05 to 2013-14

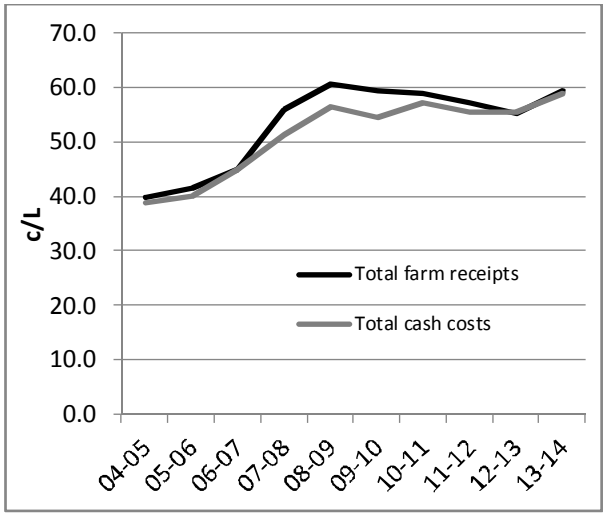


Table 6. Operating cash surplus (c/L) (2003-04 to 2013-14)

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Milk receipts (Net)	34.4	35.8	37.6	51.0	55.9	55.7	53.5	53.4	51.3	54.2
Total farm receipts	**39.8**	**41.5**	**45.0**	**56.0**	**60.8**	**59.5**	**59.0**	**57.3**	**55.4**	**59.4**
Production costs										
Purchased feed	11.9	12.6	16.2	17.9	19.7	20.0	19.1	18.2	19.4	22.8
Home grown feed	6.2	6.2	6.8	9.3	9.4	7.2	7.4	8.0	7.4	8.0
Feed related costs	**18.1**	**18.8**	**23.0**	**27.2**	**29.1**	**27.2**	**26.5**	**26.2**	**26.8**	**30.8**
Herd costs	1.4	1.5	1.5	1.7	1.9	1.9	2.2	2.1	2.2	2.1
Shed costs	1.0	1.0	1.0	1.1	1.2	1.3	1.6	1.6	1.7	1.8
Administration	1.8	1.9	1.8	2.0	2.2	2.1	2.3	2.4	2.4	2.5
Repairs & maintenance	2.2	2.3	2.4	2.7	3.3	3.7	3.6	3.3	3.2	3.4
Employed labour	3.2	3.4	3.6	4.0	5.1	5.6	6.0	5.4	5.4	5.9
Farm working expenses	**27.7**	**28.9**	**33.3**	**38.7**	**42.8**	**41.8**	**42.2**	**41.0**	**41.7**	**46.4**
Operating cash surplus	**12.1**	**12.6**	**11.7**	**17.3**	**18.0**	**17.7**	**16.8**	**16.3**	**13.7**	**13.0**

Table 7. Cash surplus / deficit (c/L) (2003-04 to 2013-14)

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Total Farm Receipts	**39.8**	**41.5**	**45.0**	**56.0**	**60.8**	**59.5**	**59.0**	**57.3**	**55.4**	**59.4**
Farm working expenses	27.7	28.9	33.3	38.7	42.8	41.8	42.2	41.0	41.7	46.4
Interest, principal	5.4	5.2	5.6	6.3	7.2	6.2	8.3	7.8	7.3	7.0
Owners' Labour	5.9	6.0	6.2	6.3	6.5	6.6	6.8	6.9	6.6	5.9
Total cash costs	**39.0**	**40.1**	**45.1**	**51.3**	**56.5**	**54.6**	**57.3**	**55.7**	**55.6**	**59.3**
Cash surplus / deficit	**0.8**	**1.4**	**-0.1**	**4.7**	**4.3**	**4.9**	**1.7**	**1.6**	**-0.2**	**0.1**

3. The distribution of QDAS cooperating farms

Figure 6. The distribution of QDAS farms by cow numbers

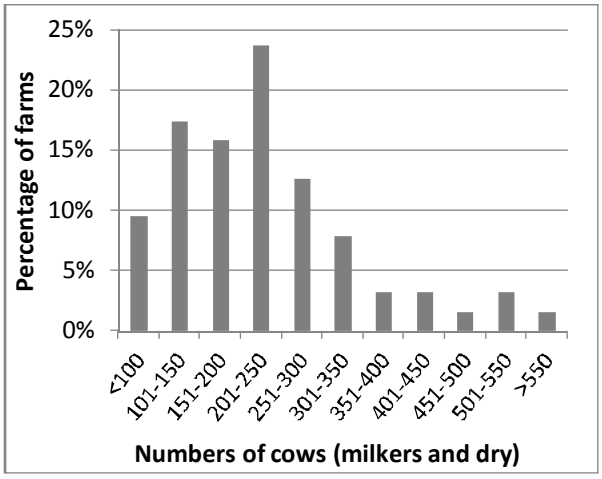


Figure 7. The distribution of QDAS farms by irrigated area

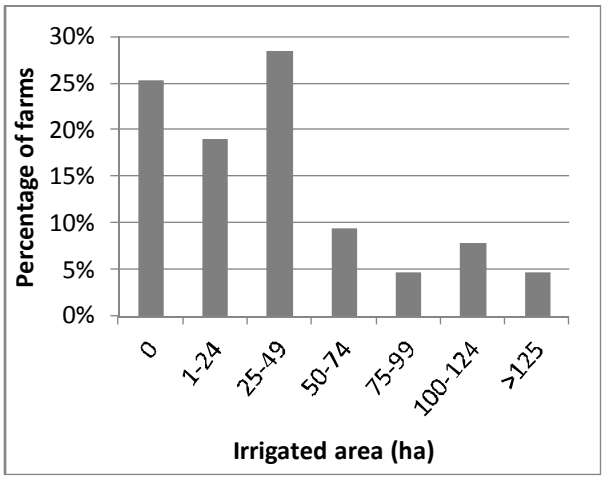


Figure 8. The distribution of QDAS farms by number of labour units

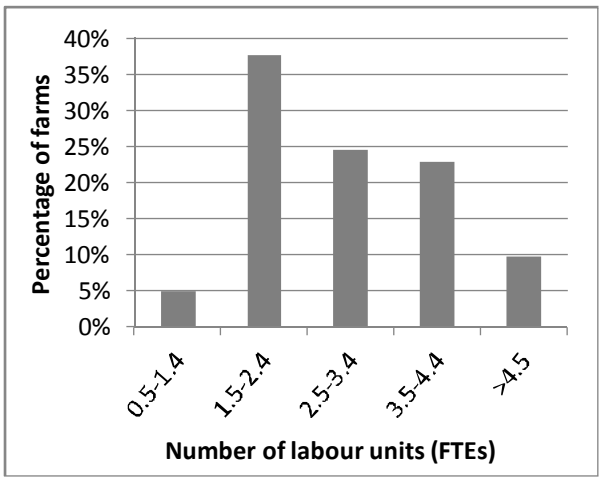


Figure 9. The distribution of QDAS farms by effective dairy area

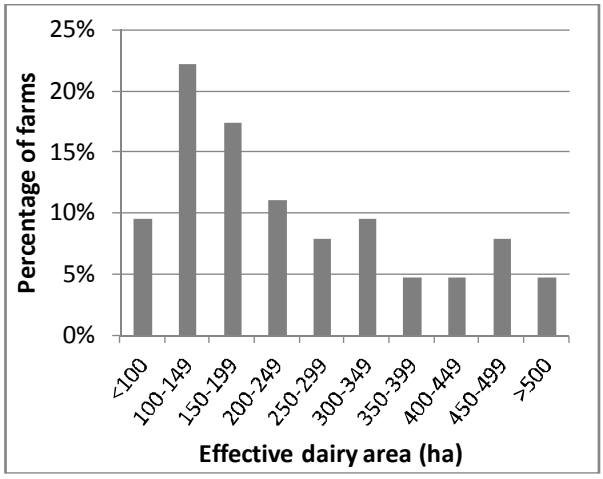


Figure 10. The distribution of QDAS farms by the percentage of effective area that is leased.

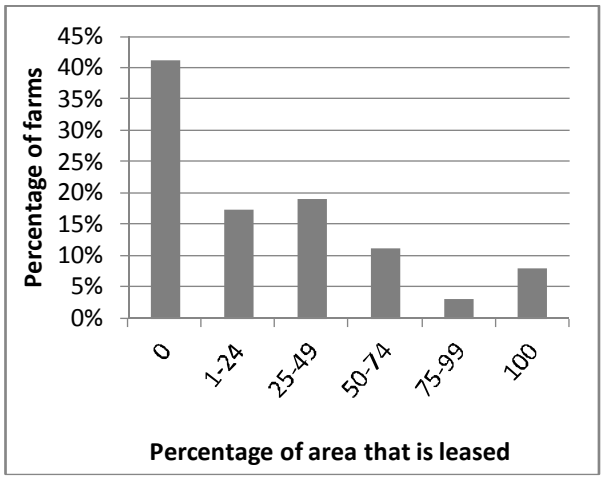


Figure 11. The distribution of QDAS farms by litres per labour unit

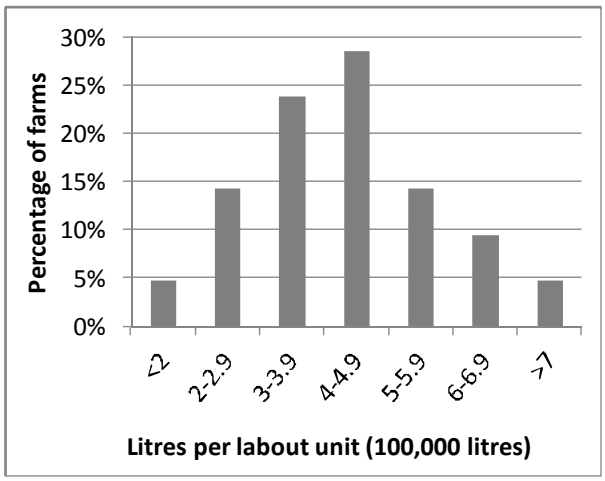


Figure 12. The distribution of QDAS farms by production per cow

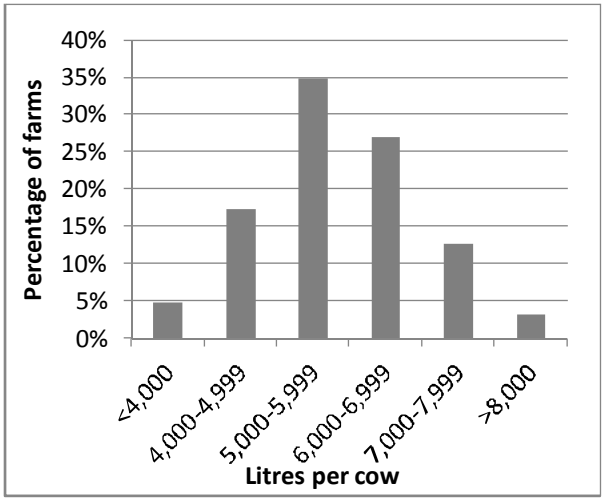


Figure 13. The distribution of QDAS farms by feed related costs

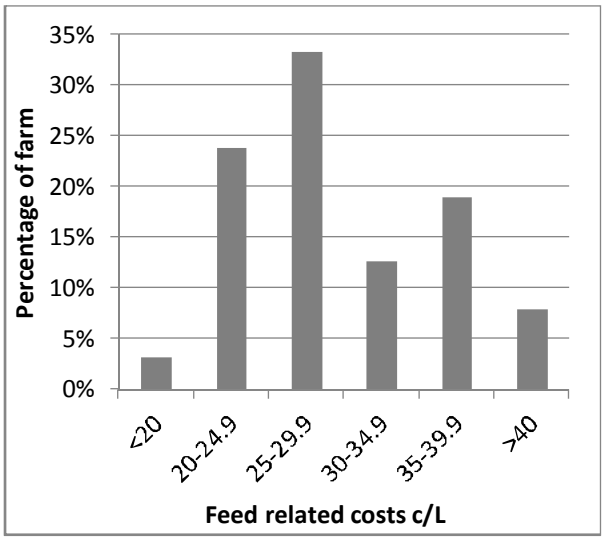


Figure 14. The distribution of QDAS farms by equity percentage

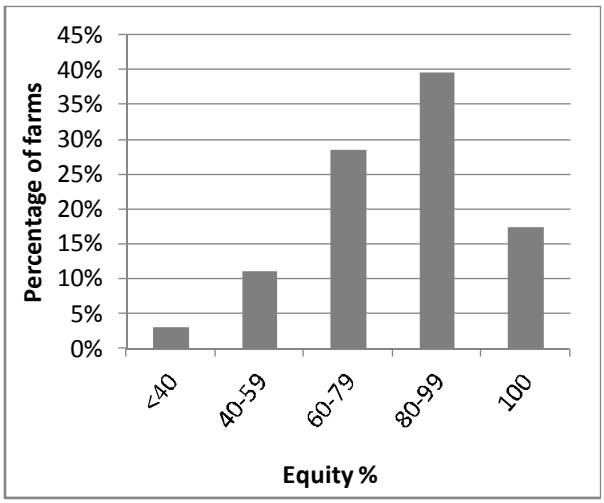


Figure 15. The distribution of QDAS farms by average milk receipts

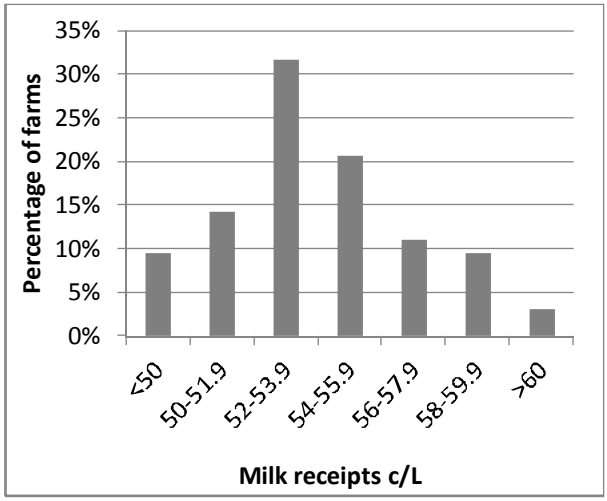


Figure 16. The distribution of QDAS farms by return on assets managed

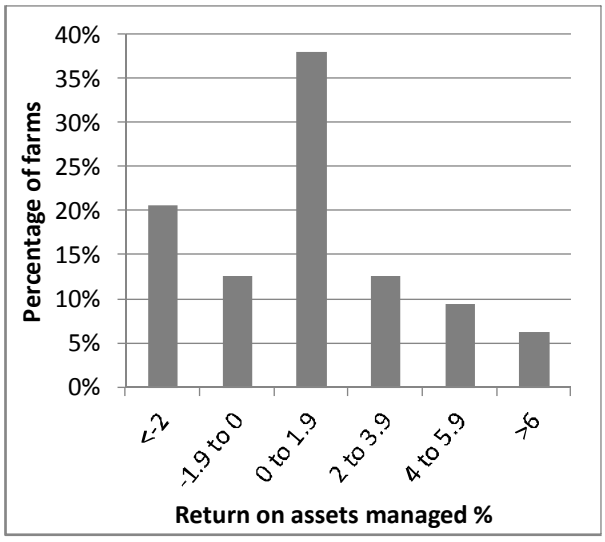
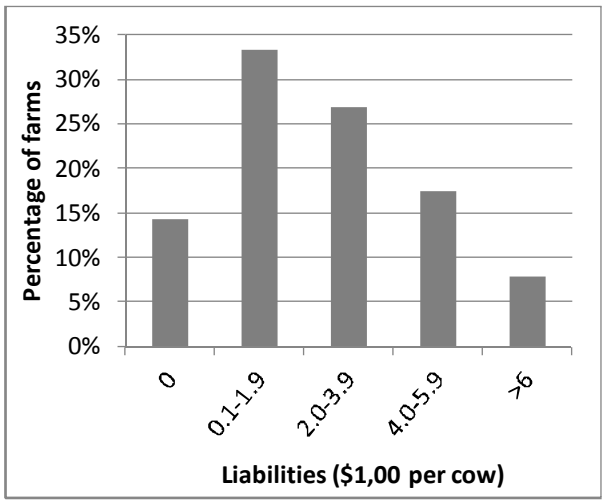


Figure 17. The distribution of QDAS farms by liabilities per cow



4. Factors affecting profitability

To investigate the factors affecting profitability, the QDAS results of the top 25% group (sorted by dairy operating profit per cow) are compared with the results of the remaining 75% of farms. Table 8 shows these results.

The higher dairy operating profit per cow achieved by the top 25% group is directly linked to the following profit drivers.

- Higher production per cow. The top 25% group produced 404 litres per cow more than the remaining 75% group.
- Selling more litres of milk. The top 25% group sold 366,358 more litres of milk than the remaining 75% group. This is driven by production per cow and by having 45 more cows (milkers and dry).
- Higher milk receipts. The top 25% group received 3.0 c/L more for their milk which was due to processor payment structures and rewards for quality and volume.
- Lower feed related costs. The top 25% group had feed related costs 3.7 c/L lower than the other group. The margin over feed related costs is 6.6 c/L higher.
- Better labour efficiency. The top 25% group achieved 86,338 more litres per labour unit, which is a 21% advantage over the other group.

Table 8. KPI for top 25% and the remaining 75% of farms (2013-14)

	Top 25%	Remaining 75%
Physical traits		
Cows (milkers + dry)	263	218
Farm production (L)	1,633,010	1,266,652
Efficiency - Physical		
Production per cow (L)	6,214	5,810
Milk from home grown feed (%) [1]	62	54
Litres per labour unit	504,405	418,067
Profit Analysis		
Dairy operating profit ($/cow)	852	-51
Average investment ($/cow)	13,909	15,123
Cash Analysis		
Milk receipts (c/L)	56.3	53.3
Feed related costs (c/L)	28.2	31.9
Total variable costs (c/L)	31.5	36.0
Margin over FRC (c/L)	28.1	21.5
Gross margin – milk only ($/cow)	1,539	1,009

[1] Milk from home grown feed results are for North Queensland only

Production per cow

QDAS reports have always shown that farms with higher production per cow have higher profitability. Table 9 shows that as production per cow increases from below 5,000 litres to above 7,000 litres profits increase. Interestingly, it is the larger farms that are achieving the highest production per cow.

Dairy operating profit per cow increased from $76 to $319 as production per cow increased.

The margin over feed related costs per litre is the highest in the <5,000 litre group, while the margin over feed related costs per cow is highest in the 6,000-7,000 litres group.

Table 9. KPI for four production (L) per cow groups in Queensland (2013-14)

	<5,000	5,000 - 6,000	6,000 - 7,000	>7,000
Farm milk production (L)	892,112	1,214,761	1,355,916	2,430,456
Cows (milkers + dry)	199	222	210	322
Production per cow (L)	4,355	5,428	6,412	7,511
Milk receipts (c/L)	53.4	54.8	53.4	54.9
Margin over FRC (c/L)	27.7	24.0	24.9	20.9
Margin over FRC ($/cow)	1,207	1,301	1,595	1,571
Dairy operating profit ($/cow)	76	269	245	319

Herd size

An important profit driver is the scale of operation. Table 10 shows the effect that increasing milk production has on profitability indicators.

Increasing the scale of a farm's operation can lead to efficiencies in administration and the use of labour. The farms producing more than 2 million litres had the highest production per cow at 7,058 litres whereas the farms producing less than 750,000 litres produced 5,028 litres per cow.

Usually the larger herds have the highest margin over feed related costs per cow. This is an indicator of their attention to detail and recognition of the need for efficient feeding systems. However, this year due to the drought and the impacts it has had on the large TMR farms, the 1.25-2.0 million litre group has a higher margin over feed related costs and return on assets than the more than 2.0 million litre group.

Labour usage was excellent in the larger herds with 531,326 litres produced per labour unit. Labour efficiency dropped to 313,751 litres per labour unit in the smaller herds.

With a dairy operating profit of $364/cow, the farms that produced 1.25 to 2.0 million litres had the highest dairy operating profit per cow. While the results of the group producing more than 2 million litres are not as good as the 1.25-2.0 million litre group, they are much greater than the group producing less than 0.75 million litres who recorded $20 per cow.

Table 10. KPI for farms with increasing annual production (2013-14)

	<0.75 m L	0.75 – 1.25 m L	1.25 – 2.0 m L	>2.0 m L
Farm milk production (L)	536,064	1,004,971	1,515,291	3,127,668
Cows (milkers + dry)	106	188	259	442
Production per cow (L)	5,028	5,278	5,771	7,058
Margin over feed related costs ($/cow)	1,237	1,289	1,535	1,432
Litres per labour unit	313,751	397,712	445,443	531,326
Return on assets managed (%)	0.1	0.6	2.0	1.6
Dairy operating profit ($/cow)	20	109	364	260

Milk from home grown feed

In 2012-13 an analysis of home grown feed was conducted in North Queensland by recording the amount of concentrates, hay and silage that were fed to milking cows. This allows the calculation of the KPI shown below in Table 11.

The group of farms that achieved more than 11 litres from home grown feed did have higher feed related costs per litre, but this paid off with $295 more in margin over feed costs per cow and $260 more in dairy operating profit per cow. This shows that increasing the litres from home grown feed is not about limiting purchased feed but feeding a balanced diet that improves feed conversion efficiency.

Table 11. KPI for farms with increasing litres from home grown feed (2013-14)

	<11.0 litres per cow per day	>11.0 litres per cow per day
Milk from home grown feed (%)	57.4	59.8
Production per cow (L)	4,778	6,105
Feed related costs (c/L)	25.7	26.7
Margin over FRC (c/L)	26.6	25.7
Margin over FRC ($/cow)	1,273	1,568
Dairy operating profit ($/cow)	145	405

5. Production system analysis

QDAS data collection concentrates on gaining a "snap-shot" into different production systems in the regions. The three systems are:

Grazing (GRA) – Milk production principally from grazing and grain and concentrates fed in the dairy. Less than 5% of dry matter intake is from hay or silage.

Partial Mixed Ration (PMR) – Milk production from a combination of grazing, grain, concentrates, hay and silage. More than 5% of dry matter intake is from hay or silage and at least 1% of dry matter intake is from grazing.

Total Mixed Ration (TMR) – Milk production principally from a silage based mixed ration fed on a pad. Less than 1% of dry matter intake is from grazing.

Table 12 shows the break up of the participating QDAS farms among the regional production systems. No reports are generated for a regional production system when less than 5 farms are surveyed in that system.

Table 12. The number of farms collected in each regional production system (2013-14)

Region	GRA	PMR	TMR	Total
North Queensland	13	2	0	15
Central Queensland	1	1	0	2
Darling Downs	2	4	9	15
South East Coastal	15	15	1	31
Total	31	22	10	63

Table 13 presents a summary of the KPI for each regional production system. There are several points of interest.

- The difference between average milk receipts in different regions has narrowed during 2013-14. North Queensland farms received 3.8 c/L more their milk primarily due to a reduction in the volume of milk that was being paid at tier 2 prices. However, North Queensland still has the lowest milk receipts per litre. Darling Downs TMR farmers received the highest milk receipts at 55.2 c/L.
- Production per cow increases as the feeding system intensifies. The grazing farms in South East Coastal and North Queensland achieves 5,553 L/cow and 5,273 L/cow. The South East Coast PMR farms averaged 5,891 L/cow while the Darling Downs TMR farms achieved 7,669 L/cow.
- The effect of drought and high purchased feed costs has resulted in the Darling Downs TMR farms recording the lowest dairy operating profit per cow of $44 per cow. The other regional production systems all achieved a dairy operating profit between $242 and $266 per cow.

This data should not be interpreted as a definitive guide for changing a farming system. It should be noted that even if a regional production system is shown here to be more profitable, the skills, infrastructure and resources required on alternative systems are quite different. Farmers contemplating a change should seek help with the phasing and sizing of that change.

Table 13. KPI for farming systems (2013-14)

	Sth East Coastal Grazing	Sth East Coastal PMR	Darling Downs TMR	North Qld Grazing
Cows (milkers + dry)	220	240	285	210
Farm production (L)	1,225,604	1,411,449	1,900,707	1,158,276
Production per cow (L)	5,553	5,891	6,669	5,273
Milk receipts (c/L)	54.2	54.1	55.2	52.4
Feed related costs (c/L)	28.0	29.1	38.3	26.2
Total variable costs (c/L)	32.3	32.4	41.6	31.3
Margin over feed related costs (c/L)	26.2	25.1	16.9	26.2
Dairy operating profit ($/cow)	266	242	44	242
Return on assets managed (%)	1.5	1.3	0.3	1.3

6. South East Coastal - Grazing

Farms obtaining a large proportion of their milk from grazing and which are located in the areas of Beaudesert, Moreton, Brisbane Valley and Gympie have been grouped under the heading of South East Coastal. These areas have higher and more reliable rainfall and have a higher proportion of irrigation than the Darling Downs farms. Permanent summer pastures are mainly kikuyu, panics and setaria with irrigation areas planted to ryegrass, clover and lucerne. Kikuyu pastures are also oversown to winter forages with grazing crops of forage sorghum and oats also grown. Grain and molasses are readily available as supplements, fed at milking time.

The farms in this group have invested $12,794 per cow in their operation, of which 70% is in the land value. Equity levels are high, averaging at 78%, and a return on assets managed of 1.5% was achieved.

Table 15 shows the data trends for farms with continuous participation in QDAS over the last 4 years (2010-11 to the present). This sample of farms is slightly smaller than the sample used in Table 14. There are several points of interest.

- Milk receipts have increased in 2013-14 to 54.8c/L and this is the highest of these four years.
- Cow numbers have increased each year from 214 in 2010-11 to 237 in 2012-13.
- Production per cow has increased in 2013-14 to 5,910 with this being the highest of these four years.
- Feed related costs are highest in 2013-14.
- Dairy operating profit slightly increased between 2012-13 and 2013-14.

Table 14. Statistics for South East Coastal grazing farms (2013-14)

Resources	
Cows (milkers + dry)	220
Mated heifers	55
Other heifers	117
Total dairy herd	391
Milking cow area (ha)	87
Effective dairy area (ha)	178
Labour units	2.7
Assets and Liabilities	
Land & buildings ($)	1,980,027
Stock ($)	478,290
Plant ($)	195,348
Other ($)	159,342
TOTAL ($)	2,813,007
Liabilities ($)	619,317
Equity (%)	78
Investment per cow ($)	12,794
Debt per cow ($)	2,817
Productivity	
Milk production (L)	1,225,604
Production per cow (L)	5,553
Financial	
Milk receipts (c/L)	54.2
Feed related costs (c/L)	28.0
Total variable costs (c/L)	32.3
Margin over feed related costs (c/L)	26.2
Dairy operating profit ($/cow)	266
Return on assets managed (%)	1.5

Table 15. Trends for South East Coastal grazing farms (2010-11 to 2013-14)

	2010-11	2011-12	2012-13	2013-14
Milk receipts (c/L)	53.9	53.8	51.9	54.8
Cows (milkers and dry)	214	225	232	237
Production per cow (L)	5,394	5,573	5,408	5,910
Feed related costs (c/L)	24.0	23.4	24.9	27.9
Margin over feed related costs (c/L)	29.9	30.5	27.1	26.9
Total variable costs (c/L)	29.2	27.7	29.3	32.2
Dairy operating profit ($/cow)	547	595	423	440

7. South East Coastal - PMR

South East Coastal PMR farms are located alongside the grazing properties in this region. They have the ability to grow similar forages to the prior group, but supplement their milkers with silage made from maize, sorghum, lucerne and/or ryegrass.

These farms have a higher investment in stock and plant. This production system usually results in higher production per cow than that of grazing farms.

The farms in this group have invested $13,241 per cow in their operation with 68% tied to the land. Equity levels are high, averaging at 87% and a return on assets managed of 1.3% was achieved.

Table 17 shows the data trends for farms with continuous participation in QDAS over the last 4 years (2010-11 to the present). This sample of farms is slightly smaller than the sample used in Table 16. There are several points of interest.

- Milk receipts have increased to 54.4 c/L in 2013-14 but are still slightly lower than the 2010-11 level.
- Cow numbers have fluctuated over the four years but have risen from 241 in 2010-11 to 254 in 2013-14.
- Production per cow has increased each year from 5,642 in 2010-11 to 5,988 in 2013-14.
- Feed related costs are highest in 2013-14.
- The 2013-14 dairy operating profit result is similar to the 2012-13 result but is nearly half of the $615 per cow achieved in 2010-11.

Table 16. Statistics for South East Coastal PMR farms (2013-14)

Resources	
Cows (milkers + dry)	240
Mated heifers	46
Other heifers	105
Total dairy herd	390
Milking cow area (ha)	98
Effective dairy area (ha)	222
Labour units	3.4
Assets and Liabilities	
Land & buildings ($)	2,143,500
Stock ($)	514,357
Plant ($)	316,535
Other ($)	198,122
TOTAL ($)	3,172,514
Liabilities ($)	418,191
Equity (%)	87
Investment per cow ($)	13,241
Debt per cow ($)	1,745
Productivity	
Milk production (L)	1,411,449
Production per cow (L)	5,891
Financial	
Milk receipts (c/L)	54.1
Feed related costs (c/L)	29.1
Total variable costs (c/L)	32.4
Margin over feed related costs (c/L)	25.1
Dairy operating profit ($/cow)	242
Return on assets managed (%)	1.3

Table 17. Trends for South East Coastal PMR farms (2010-11 to 2013-14)

	2010-11	2011-12	2012-13	2013-14
Milk receipts (c/L)	54.8	53.0	51.6	54.4
Cows (milkers and dry)	241	239	251	254
Production per cow (L)	5,642	5,889	5,966	5,988
Feed related costs (c/L)	24.0	24.9	23.4	29.0
Margin over feed related costs (c/L)	30.8	28.1	28.2	25.5
Total variable costs (c/L)	27.1	28.0	26.3	32.1
Dairy operating profit ($/cow)	615	472	322	326

8. Darling Downs - TMR

The majority of the TMR farms are located north of the Warrego Highway and are mostly dryland farms with large cropping areas. Most farmers concentrate on growing large volumes of summer forages for silage. Winter crops are opportunistic in years when sub soil moisture is available. In years of average or above average rainfall they grow all their own forage requirements.

These farms have commodity sheds. Grain, by-products and protein meals are purchased in bulk and forward contracting is common. They are ideally situated in relation to the grain growing areas of Queensland which reduces freight on grain. It is common to feed up to 12 -14 kilograms of concentrate per cow per day.

They have invested $12,053 per cow in their operation with 59% tied to the land. With the large investment in infrastructure that is required, they have a high debt per cow of $3,587 and equity of 70%, the lowest equity of all groups. A return on assets managed of 0.3% was achieved.

Table 19 shows the data trends for farms with continuous participation in QDAS over the last 4 years (2010-11 to the present). This sample of farms is slightly smaller than the sample used in Table 18. There are several points of interest.

- Milk receipts are highest in 2013-14 at 55.7c/L.
- Cow numbers have increased each year from 239 in 2010-11 to 299 in 2013-14.
- Production per cow was stable around 7,000 litres between 2010-11 and 2012-13. This reduced to 6,594 in 2013-14.
- Feed related costs are highest in 2013-14.
- Dairy operating profit has decreased to $78 per cow in 2013-14.

Table 18. Statistics for Darling Downs TMR farms (2013-14)

Resources	
Cows (milkers + dry)	285
Mated heifers	61
Other heifers	142
Total dairy herd	488
Milking cow area (ha)	222
Effective dairy area (ha)	465
Labour units	3.7
Assets and Liabilities	
Land & buildings ($)	2,009,556
Stock ($)	700,576
Plant ($)	438,333
Other ($)	286,662
TOTAL ($)	3,435,126
Liabilities ($)	1,022,431
Equity (%)	70
Investment per cow ($)	12,053
Debt per cow ($)	3,587
Productivity	
Milk production (L)	1,900,707
Production per cow (L)	6,669
Financial	
Milk receipts (c/L)	55.2
Feed related costs (c/L)	38.3
Total variable costs (c/L)	41.6
Margin over feed related costs (c/L)	16.9
Dairy operating profit ($/cow)	44
Return on assets managed (%)	0.3

Table 19. Trends for Darling Downs TMR farms (2010-11 to 2013-14)

	2010-11	2011-12	2012-13	2013-14
Milk receipts (c/L)	55.5	54.9	53.5	55.7
Cows (milkers and dry)	239	251	292	299
Production per cow (L)	7,000	7,183	6,993	6,594
Feed related costs (c/L)	35.3	30.8	32.7	39.2
Margin over feed related costs (c/L)	20.2	24.1	20.8	16.5
Total variable costs (c/L)	38.1	33.9	35.6	42.4
Dairy operating profit ($/cow)	556	718	583	78

9. North Queensland - Grazing

These farms are located in tropical North Queensland around the areas of Malanda, Millaa Millaa and Ravenshoe.

Grazing with grain fed in the dairy is the predominant production system in the tropics. This means the upper limit for grain intake is 6-8 kgs. Some farms feed whole cottonseed and many feed rhodes grass hay for limited periods.

The farms in this group have invested $17,770 per cow in their operation, of which 72% is in the land value. Equity levels are high, averaging at 88% (the highest of the regional production systems) and a return on assets managed of 1.3% was achieved.

Milk receipts are lower and feed concentrates are more expensive (due to the freight component) than in the South East Coastal and Darling Downs systems.

Table 21 shows the data trends for farms with continuous participation in QDAS over the last 4 years (2010-11 to the present). This sample of farms is slightly smaller than the sample used in Table 20. There are several points of interest.

- Milk receipts continue to fluctuate and are highest in 2013-14 at 51.9 c/L.
- Cow numbers are within the range of 181 and 186.
- Production per cow is highest in 2013-14 at 5,400 litres.
- Feed related costs have been between 25.0 and 25.4 c/L for the last three years.
- Dairy operating profit has increased from -$153 in 2012-13 to $129 in 2013-14 due to the increase in milk receipts.

Table 20. Statistics for North Queensland grazing farms (2013-14)

Resources	
Cows (milkers + dry)	210
Mated heifers	38
Other heifers	113
Total dairy herd	360
Milking cow area (ha)	103
Effective dairy area (ha)	214
Labour units	2.9
Assets and Liabilities	
Land & buildings ($)	2,682,385
Stock ($)	542,046
Plant ($)	255,000
Other ($)	249,502
TOTAL ($)	3,728,932
Liabilities ($)	449,221
Equity (%)	88
Investment per cow ($)	17,770
Debt per cow ($)	2,141
Productivity	
Milk production (L)	1,158,276
Production per cow (L)	5,273
Financial	
Milk receipts (c/L)	52.4
Feed related costs (c/L)	26.2
Total variable costs (c/L)	31.3
Margin over feed related costs (c/L)	26.2
Dairy operating profit ($/cow)	242
Return on assets managed (%)	1.3

Table 21. Trends for North Queensland grazing farms (2010-11 to 2013-14)

	2010-11	2011-12	2012-13	2013-14
Milk receipts (c/L)	48.8	51.2	47.9	51.9
Cows (milkers and dry)	186	183	185	181
Production per cow (L)	5,202	5,287	5,363	5,400
Feed related costs (c/L)	22.7	25.4	25.1	25.0
Margin over feed related costs (c/L)	26.1	25.8	22.8	26.9
Total variable costs (c/L)	27.2	30.1	29.2	29.5
Dairy operating profit ($/cow)	272	107	-153	129

10. Appendices

10.1 Group cash flow – All 63 QDAS farms (2013–14)

Queensland dairy accounting scheme

Group cashflow Year: 2014

All farms

Cash receipts		Cents/litre	$/cow	$/kg MS		Total $ earned
Milk receipts	1,359,696 litres	55.2	3,271.2	7.62		750,404
less cartage and levies		-1.0	-56.9	-0.13		-13,042
Milk Receipts - net of cartage and levies		**54.2**	**3,214.4**	**7.48**		**737,363**
Stock sales - dairy		3.9	231.6	0.54		53,127
Other farm receipts		1.2	71.9	0.17		16,495
Total farm receipts		**59.4**	**3,517.9**	**8.19**		**806,984**
Cash costs		**Cents/litre**	**$/cow**	**$/kg MS**	**% Milk receipts**	**Total $ spent**
Purchased grain, concentrates, additives		19.9	1,177.7	2.74	36.6	270,160
Purchased fodder, silage, hay		2.9	174.0	0.41	5.4	39,926
Total purchased feeds		**22.8**	**1,351.7**	**3.15**	**42.1**	**310,087**
Fertiliser		2.4	140.3	0.33	4.4	32,176
Fuel & oil		1.6	95.2	0.22	3.0	21,831
Seed and ag chemicals		1.0	59.5	0.14	1.9	13,651
Irrigation costs		1.1	62.9	0.15	2.0	14,435
Hay and silage making costs		1.5	90.2	0.21	2.8	20,690
Agistment costs		0.4	20.9	0.05	0.6	4,785
Other feed costs		0.0	2.2	0.01	0.1	498
Feed Related Costs		**30.8**	**1,822.8**	**4.24**	**56.7**	**418,153**
Animal health		1.5	87.4	0.20	2.7	20,043
Herd improvement		0.6	35.3	0.08	1.1	8,108
Herd costs		**2.1**	**122.7**	**0.29**	**3.8**	**28,151**
Dairy shed costs - electricity		1.0	60.0	0.14	1.9	13,762
Dairy shed costs - chemicals		0.8	46.0	0.11	1.4	10,546
Shed costs		**1.8**	**106.0**	**0.25**	**3.3**	**24,307**
Total Variable Costs		**34.6**	**2,051.5**	**4.78**	**63.8**	**470,612**
Administration		2.5	146.2	0.34	4.5	33,548
Repairs & maintenance		3.4	202.7	0.47	6.3	46,498
Paid labour		5.9	348.0	0.81	10.8	79,821
Total overhead costs		**11.8**	**696.9**	**1.62**	**21.7**	**159,867**
Farm working expenses		**46.4**	**2,748.4**	**6.40**	**85.5**	**630,479**
Interest		3.1	185.8	0.43	5.8	42,630
Principal		2.9	170.4	0.40	5.3	39,098
Land lease costs		1.0	61.1	0.14	1.9	14,017
Owner's labour		5.9	351.6	0.82	10.9	80,651
Total cash costs		**59.3**	**3,517.4**	**8.19**	**109.4**	**806,874**
Net cashflow before tax		**0.0**	**0.5**	**0.00**	**0.0**	**110**
Margin over feed related costs		23.5	1,391.5	3.24	43.3	319,209
Gross Margin - milk only		19.6	1,162.8	2.71	36.2	266,751
Operating cash surplus		13.0	769.4	1.79	23.9	176,505

Labour inputs		**Stock**		**Production**		
Unpaid labour	1.6	Cows (milking and dry)	229	Total litres sold		1,359,696
Paid labour	1.4	Total herd	402	Litres/cow		5,927
Total labour units	3.1	**Areas**		Protein (kg)	3.30%	44,815
Litres/labour unit	441,096	Usable area (ha)	256	Butterfat (kg)	3.95%	53,699
Cows/labour unit	74	Irrigation area (ha)	41	Milk solids/cow		429

Farms in report: 63

Report created: 19/12/2014 12:26 PM

10.2 Group cash gross margin – Top 25% of farms (2013–14)

Queensland dairy accounting scheme

Group cashflow

Year: 2014

Top 25%

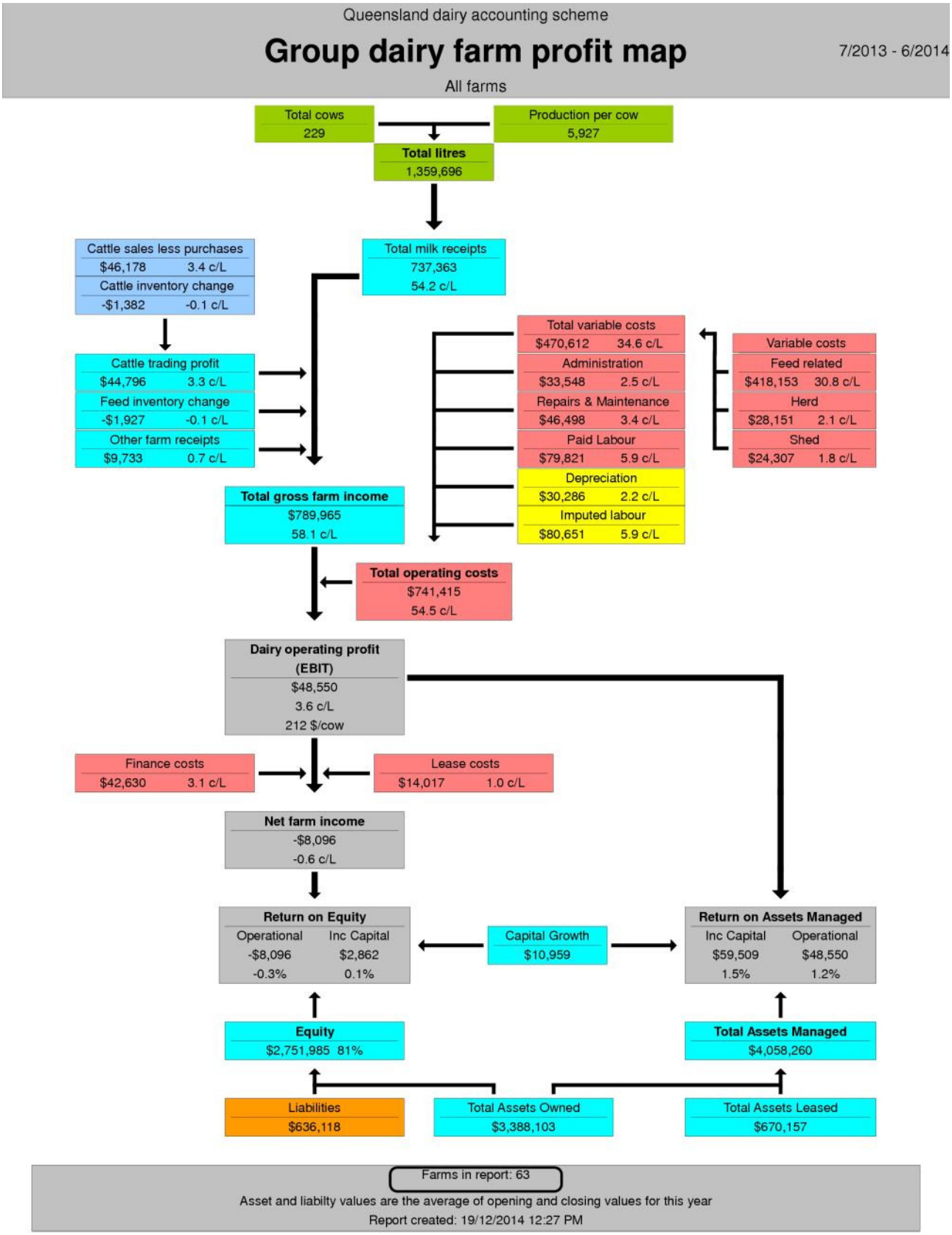
Cash receipts		Cents/litre	$/cow	$/kg MS		Total $ earned
Milk receipts	1,633,010 litres	57.0	3,544.4	7.79		931,512
less cartage and levies		-0.8	-46.8	-0.10		-12,304
Milk Receipts - net of cartage and levies		**56.3**	**3,497.6**	**7.68**		**919,208**
Stock sales - dairy		3.9	240.9	0.53		63,318
Other farm receipts		0.9	56.5	0.12		14,838
Total farm receipts		**61.1**	**3,795.0**	**8.34**		**997,365**
Cash costs		**Cents/litre**	**$/cow**	**$/kg MS**	**% Milk receipts**	**Total $ spent**
Purchased grain, concentrates, additives		19.8	1,232.8	2.71	35.2	323,987
Purchased fodder, silage, hay		1.1	66.6	0.15	1.9	17,511
Total purchased feeds		**20.9**	**1,299.4**	**2.85**	**37.2**	**341,498**
Fertiliser		2.2	138.9	0.31	4.0	36,514
Fuel & oil		1.4	86.7	0.19	2.5	22,776
Seed and ag chemicals		1.0	60.5	0.13	1.7	15,900
Irrigation costs		1.1	68.7	0.15	2.0	18,058
Hay and silage making costs		1.1	70.4	0.15	2.0	18,501
Agistment costs		0.4	26.7	0.06	0.8	7,010
Other feed costs		0.0	0.7	0.00	0.0	178
Feed Related Costs		**28.2**	**1,752.0**	**3.85**	**50.1**	**460,436**
Animal health		1.2	76.2	0.17	2.2	20,019
Herd improvement		0.6	38.3	0.08	1.1	10,056
Herd costs		**1.8**	**114.4**	**0.25**	**3.3**	**30,075**
Dairy shed costs - electricity		0.9	52.9	0.12	1.5	13,912
Dairy shed costs - chemicals		0.6	39.6	0.09	1.1	10,394
Shed costs		**1.5**	**92.5**	**0.20**	**2.6**	**24,306**
Total Variable Costs		**31.5**	**1,958.9**	**4.30**	**56.0**	**514,818**
Administration		2.0	125.1	0.27	3.6	32,879
Repairs & maintenance		3.4	209.9	0.46	6.0	55,160
Paid labour		4.7	295.1	0.65	8.4	77,543
Total overhead costs		**10.1**	**630.0**	**1.38**	**18.0**	**165,582**
Farm working expenses		**41.7**	**2,588.9**	**5.69**	**74.0**	**680,400**
Interest		2.9	181.5	0.40	5.2	47,702
Principal		3.4	211.0	0.46	6.0	55,451
Land lease costs		1.4	88.6	0.19	2.5	23,274
Owner's labour		6.2	382.6	0.84	10.9	100,562
Total cash costs		**55.6**	**3,452.6**	**7.58**	**98.7**	**907,389**
Net cashflow before tax		**5.5**	**342.4**	**0.75**	**9.8**	**89,976**
Margin over feed related costs		28.1	1,745.6	3.83	49.9	458,772
Gross Margin - milk only		24.8	1,538.7	3.38	44.0	404,390
Operating cash surplus		19.4	1,206.0	2.65	34.5	316,965

Labour inputs		Stock		Production		
Unpaid labour	1.8	Cows (milking and dry)	263	Total litres sold		1,633,010
Paid labour	1.4	Total herd	480	Litres/cow		6,214
Total labour units	3.2	**Areas**		Protein (kg)	3.35%	54,775
Litres/labour unit	504,405	Usable area (ha)	277	Butterfat (kg)	3.97%	64,866
Cows/labour unit	81	Irrigation area (ha)	52	Milk solids/cow		455

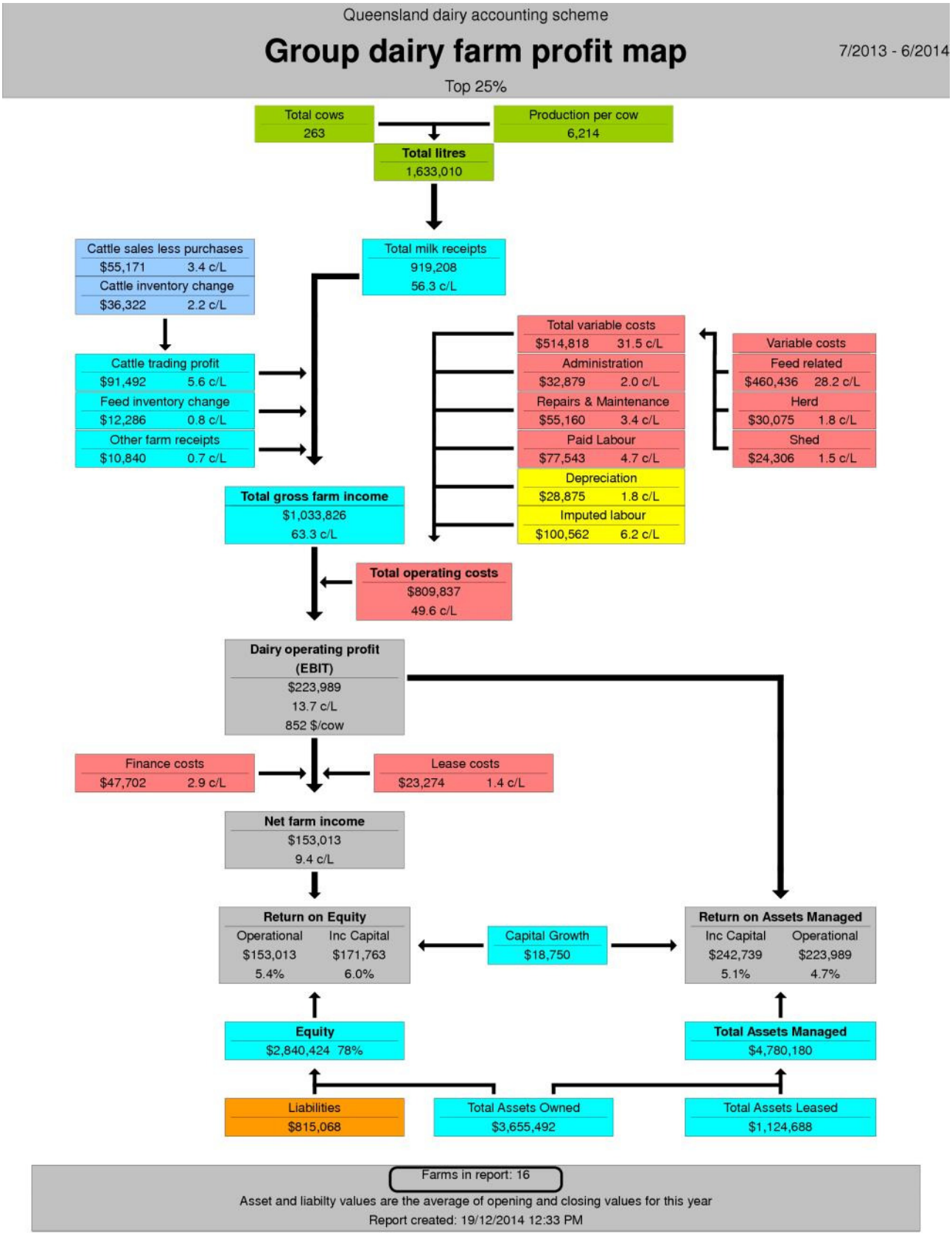
Farms in report: 16

Report created: 19/12/2014 12:32 PM

10.3 Map of farm performance – All 62 QDAS farms (2013–14)



10.4 Map of farm performance – Top 25% of farms (2013–14)



10.5 Group cash gross margin – South East Coastal – Grazing (2013–14)

Queensland dairy accounting scheme

Group cashflow

Year: 2014

South East Coastal Grazing

Cash receipts		Cents/litre	$/cow	$/kg MS		Total $ earned
Milk receipts	1,220,938 litres	55.6	3,087.3	7.58		678,800
less cartage and levies		-1.4	-77.6	-0.19		-17,064
Milk Receipts - net of cartage and levies		**54.2**	**3,009.7**	**7.39**		**661,736**
Stock sales - dairy		2.9	160.1	0.39		35,210
Other farm receipts		0.9	49.3	0.12		10,833
Total farm receipts		**58.0**	**3,219.1**	**7.90**		**707,780**
Cash costs		**Cents/litre**	**$/cow**	**$/kg MS**	**% Milk receipts**	**Total $ spent**
Purchased grain, concentrates, additives		20.4	1,131.1	2.78	37.6	248,692
Purchased fodder, silage, hay		1.0	54.0	0.13	1.8	11,879
Total purchased feeds		**21.3**	**1,185.1**	**2.91**	**39.4**	**260,572**
Fertiliser		3.0	168.9	0.41	5.6	37,140
Fuel & oil		1.3	69.6	0.17	2.3	15,295
Seed and ag chemicals		0.8	46.9	0.11	1.6	10,302
Irrigation costs		1.3	71.4	0.18	2.4	15,706
Hay and silage making costs		0.2	9.6	0.02	0.3	2,113
Agistment costs		0.0	1.8	0.00	0.1	400
Other feed costs		0.0	0.1	0.00	0.0	25
Feed Related Costs		**28.0**	**1,553.5**	**3.81**	**51.6**	**341,554**
Animal health		1.8	97.4	0.24	3.2	21,412
Herd improvement		0.8	44.6	0.11	1.5	9,814
Herd costs		**2.6**	**142.0**	**0.35**	**4.7**	**31,226**
Dairy shed costs - electricity		0.9	48.1	0.12	1.6	10,579
Dairy shed costs - chemicals		0.9	49.5	0.12	1.6	10,884
Shed costs		**1.8**	**97.6**	**0.24**	**3.2**	**21,463**
Total Variable Costs		**32.3**	**1,793.1**	**4.40**	**59.6**	**394,243**
Administration		2.7	150.8	0.37	5.0	33,161
Repairs & maintenance		3.8	213.3	0.52	7.1	46,908
Paid labour		6.1	339.2	0.83	11.3	74,572
Total overhead costs		**12.7**	**703.3**	**1.73**	**23.4**	**154,641**
Farm working expenses		**45.0**	**2,496.4**	**6.13**	**82.9**	**548,885**
Interest		2.9	160.5	0.39	5.3	35,280
Principal		1.7	93.1	0.23	3.1	20,465
Land lease costs		2.0	109.6	0.27	3.6	24,099
Owner's labour		5.5	307.8	0.76	10.2	67,667
Total cash costs		**57.0**	**3,167.4**	**7.77**	**105.2**	**696,395**
Net cashflow before tax		**0.9**	**51.8**	**0.13**	**1.7**	**11,384**
Margin over feed related costs		26.2	1,456.3	3.57	48.4	320,182
Gross Margin - milk only		21.9	1,216.6	2.99	40.4	267,493
Operating cash surplus		13.0	722.7	1.77	24.0	158,895

Labour inputs		Stock		Production		
Unpaid labour	1.3	Cows (milking and dry)	220	Total litres sold		1,220,938
Paid labour	1.4	Total herd	393	Litres/cow		5,553
Total labour units	2.7	**Areas**		Protein (kg)	3.34%	40,805
Litres/labour unit	452,199	Usable area (ha)	178	Butterfat (kg)	4.00%	48,793
Cows/labour unit	81	Irrigation area (ha)	41	Milk solids/cow		408

Farms in report: 15

Report created: 20/11/2014 2:09 PM

10.6 Group cash gross margin – South East Coastal – PMR (2013–14)

Queensland dairy accounting scheme

Group cashflow

Year: 2014

South East Coastal PMR

Cash receipts		Cents/litre	$/cow	$/kg MS		Total $ earned
Milk receipts	1,411,449 litres	55.2	3,251.3	7.67		779,011
less cartage and levies		-1.1	-62.6	-0.15		-15,001
Milk Receipts - net of cartage and levies		**54.1**	**3,188.7**	**7.52**		**764,010**
Stock sales - dairy		3.2	187.1	0.44		44,829
Other farm receipts		0.7	41.5	0.10		9,943
Total farm receipts		**58.0**	**3,417.3**	**8.06**		**818,782**
Cash costs		**Cents/litre**	**$/cow**	**$/kg MS**	**% Milk receipts**	**Total $ spent**
Purchased grain, concentrates, additives		17.5	1,033.4	2.44	32.4	247,598
Purchased fodder, silage, hay		2.7	158.8	0.37	5.0	38,051
Total purchased feeds		**20.2**	**1,192.2**	**2.81**	**37.4**	**285,649**
Fertiliser		1.9	111.2	0.26	3.5	26,650
Fuel & oil		1.7	103.0	0.24	3.2	24,668
Seed and ag chemicals		1.4	80.1	0.19	2.5	19,204
Irrigation costs		1.8	104.7	0.25	3.3	25,076
Hay and silage making costs		1.9	110.1	0.26	3.5	26,387
Agistment costs		0.2	11.1	0.03	0.3	2,670
Other feed costs		0.0	0.2	0.00	0.0	58
Feed Related Costs		**29.1**	**1,712.7**	**4.04**	**53.7**	**410,362**
Animal health		1.3	76.0	0.18	2.4	18,205
Herd improvement		0.5	28.3	0.07	0.9	6,778
Herd costs		**1.8**	**104.3**	**0.25**	**3.3**	**24,983**
Dairy shed costs - electricity		0.9	50.3	0.12	1.6	12,055
Dairy shed costs - chemicals		0.7	43.5	0.10	1.4	10,426
Shed costs		**1.6**	**93.8**	**0.22**	**2.9**	**22,481**
Total Variable Costs		**32.4**	**1,910.8**	**4.51**	**59.9**	**457,827**
Administration		2.3	133.7	0.32	4.2	32,037
Repairs & maintenance		3.3	195.0	0.46	6.1	46,727
Paid labour		7.9	465.0	1.10	14.6	111,413
Total overhead costs		**13.5**	**793.7**	**1.87**	**24.9**	**190,178**
Farm working expenses		**45.9**	**2,704.5**	**6.38**	**84.8**	**648,004**
Interest		2.2	131.8	0.31	4.1	31,582
Principal		2.0	119.0	0.28	3.7	28,523
Land lease costs		1.6	96.4	0.23	3.0	23,088
Owner's labour		5.0	295.2	0.70	9.3	70,733
Total cash costs		**56.8**	**3,347.0**	**7.89**	**105.0**	**801,930**
Net cashflow before tax		**1.2**	**70.3**	**0.17**	**2.2**	**16,852**
Margin over feed related costs		25.1	1,476.0	3.48	46.3	353,648
Gross Margin - milk only		21.7	1,277.9	3.01	40.1	306,184
Operating cash surplus		12.1	712.8	1.68	22.4	170,778

Labour inputs		Stock		Production		
Unpaid labour	1.3	Cows (milking and dry)	240	Total litres sold		1,411,449
Paid labour	2.1	Total herd	394	Litres/cow		5,891
Total labour units	3.4	**Areas**		Protein (kg)	3.29%	46,375
Litres/labour unit	414,320	Usable area (ha)	222	Butterfat (kg)	3.91%	55,216
Cows/labour unit	70	Irrigation area (ha)	74	Milk solids/cow		424

Farms in report: 15

Report created: 20/11/2014 2:12 PM

10.7 Group cash gross margin – Darling Downs – TMR (2013–14)

Queensland dairy accounting scheme

Group cashflow

Year: 2014

Darling Downs TMR

Cash receipts		Cents/litre	$/cow	$/kg MS		Total $ earned
Milk receipts	1,900,707 litres	56.3	3,751.8	7.59		1,069,270
less cartage and levies		-1.1	-71.7	-0.15		-20,432
Milk Receipts - net of cartage and levies		**55.2**	**3,680.1**	**7.45**		**1,048,839**
Stock sales - dairy		5.4	361.5	0.73		103,024
Other farm receipts		1.1	73.4	0.15		20,924
Total farm receipts		**61.7**	**4,115.0**	**8.33**		**1,172,786**
Cash costs		**Cents/litre**	**$/cow**	**$/kg MS**	**% Milk receipts**	**Total $ spent**
Purchased grain, concentrates, additives		24.7	1,649.3	3.34	44.8	470,063
Purchased fodder, silage, hay		5.1	341.7	0.69	9.3	97,381
Total purchased feeds		**29.9**	**1,991.0**	**4.03**	**54.1**	**567,443**
Fertiliser		1.3	85.2	0.17	2.3	24,294
Fuel & oil		2.2	148.1	0.30	4.0	42,216
Seed and ag chemicals		0.9	59.5	0.12	1.6	16,967
Irrigation costs		0.1	7.4	0.01	0.2	2,112
Hay and silage making costs		3.9	261.2	0.53	7.1	74,439
Agistment costs		0.0	2.7	0.01	0.1	783
Other feed costs		0.0	0.8	0.00	0.0	236
Feed Related Costs		**38.3**	**2,556.1**	**5.17**	**69.5**	**728,490**
Animal health		1.0	66.6	0.13	1.8	18,976
Herd improvement		0.2	12.5	0.03	0.3	3,553
Herd costs		**1.2**	**79.0**	**0.16**	**2.1**	**22,529**
Dairy shed costs - electricity		1.2	78.3	0.16	2.1	22,315
Dairy shed costs - chemicals		0.9	57.8	0.12	1.6	16,478
Shed costs		**2.0**	**136.1**	**0.28**	**3.7**	**38,793**
Total Variable Costs		**41.6**	**2,771.3**	**5.61**	**75.3**	**789,812**
Administration		1.7	116.3	0.24	3.2	33,158
Repairs & maintenance		2.8	186.8	0.38	5.1	53,243
Paid labour		4.1	276.2	0.56	7.5	78,730
Total overhead costs		**8.7**	**579.4**	**1.17**	**15.7**	**165,131**
Farm working expenses		**50.2**	**3,350.7**	**6.78**	**91.0**	**954,942**
Interest		3.9	260.4	0.53	7.1	74,214
Principal		4.1	275.5	0.56	7.5	78,521
Land lease costs		0.5	33.1	0.07	0.9	9,425
Owner's labour		5.4	362.6	0.73	9.9	103,333
Total cash costs		**64.2**	**4,282.2**	**8.67**	**116.4**	**1,220,436**
Net cashflow before tax		**-2.5**	**-167.2**	**-0.34**	**-4.5**	**-47,650**
Margin over feed related costs		16.9	1,124.0	2.27	30.5	320,349
Gross Margin - milk only		13.6	908.9	1.84	24.7	259,027
Operating cash surplus		11.5	764.4	1.55	20.8	217,844

Labour inputs		Stock		Production		
Unpaid labour	2.2	Cows (milking and dry)	285	Total litres sold		1,900,707
Paid labour	1.5	Total herd	494	Litres/cow		6,669
Total labour units	3.7	**Areas**		Protein (kg)	3.35%	63,690
Litres/labour unit	513,705	Usable area (ha)	465	Butterfat (kg)	4.06%	77,137
Cows/labour unit	77	Irrigation area (ha)	3	Milk solids/cow		494

Farms in report: 9

Report created: 20/11/2014 2:16 PM

10.8 Group cash gross margin – North Queensland – Grazing (2013–14)

Queensland dairy accounting scheme

Group cashflow

Year: 2014

North Queensland Grazing

Cash receipts	Cents/litre	$/cow	$/kg MS	Total $ earned
Milk receipts 1,106,458 litres	52.9	2,791.1	7.42	585,701
less cartage and levies	-0.6	-29.2	-0.08	-6,129
Milk Receipts - net of cartage and levies	**52.4**	**2,761.9**	**7.34**	**579,572**
Stock sales - dairy	4.6	242.0	0.64	50,783
Other farm receipts	1.3	69.2	0.18	14,530
Total farm receipts	**58.3**	**3,073.1**	**8.16**	**644,886**

Cash costs	Cents/litre	$/cow	$/kg MS	% Milk receipts	Total $ spent
Purchased grain, concentrates, additives	18.6	979.1	2.60	35.4	205,451
Purchased fodder, silage, hay	0.9	49.8	0.13	1.8	10,446
Total purchased feeds	**19.5**	**1,028.8**	**2.73**	**37.3**	**215,897**
Fertiliser	3.5	182.1	0.48	6.6	38,223
Fuel & oil	1.0	54.1	0.14	2.0	11,349
Seed and ag chemicals	0.3	17.7	0.05	0.6	3,724
Irrigation costs	0.2	13.0	0.03	0.5	2,736
Hay and silage making costs	0.0	0.0	0.00	0.0	0
Agistment costs	1.4	74.5	0.20	2.7	15,626
Other feed costs	0.2	8.7	0.02	0.3	1,822
Feed Related Costs	**26.2**	**1,379.0**	**3.66**	**49.9**	**289,377**
Animal health	2.0	104.3	0.28	3.8	21,883
Herd improvement	1.1	57.5	0.15	2.1	12,057
Herd costs	**3.1**	**161.7**	**0.43**	**5.9**	**33,940**
Dairy shed costs - electricity	1.3	67.6	0.18	2.4	14,177
Dairy shed costs - chemicals	0.8	42.1	0.11	1.5	8,839
Shed costs	**2.1**	**109.7**	**0.29**	**4.0**	**23,017**
Total Variable Costs	**31.3**	**1,650.4**	**4.38**	**59.8**	**346,334**
Administration	3.2	169.0	0.45	6.1	35,465
Repairs & maintenance	3.0	158.8	0.42	5.8	33,328
Paid labour	6.0	318.7	0.85	11.5	66,886
Total overhead costs	**12.3**	**646.6**	**1.72**	**23.4**	**135,680**
Farm working expenses	**43.6**	**2,297.0**	**6.10**	**83.2**	**482,014**
Interest	2.8	148.3	0.39	5.4	31,126
Principal	2.9	151.1	0.40	5.5	31,702
Land lease costs	0.6	32.6	0.09	1.2	6,840
Owner's labour	6.8	361.1	0.96	13.1	75,769
Total cash costs	**56.7**	**2,990.1**	**7.94**	**108.3**	**627,452**
Net cashflow before tax	**1.6**	**83.1**	**0.22**	**3.0**	**17,434**

Margin over feed related costs	26.2	1,382.9	3.67	50.1	290,195
Gross Margin - milk only	21.1	1,111.5	2.95	40.2	233,238
Operating cash surplus	14.7	776.1	2.06	28.1	162,871

Labour inputs		Stock		Production		
Unpaid labour	1.6	Cows (milking and dry)	210	Total litres sold		1,106,458
Paid labour	1.2	Total herd	363	Litres/cow		5,273
Total labour units	2.9	**Areas**		Protein (kg)	3.21%	35,477
Litres/labour unit	385,629	Usable area (ha)	214	Butterfat (kg)	3.93%	43,508
Cows/labour unit	73	Irrigation area (ha)	9	Milk solids/cow		376

Farms in report: 13

Report created: 20/11/2014 2:19 PM

10.9 Business traits, key performance indicators and definitions

Key performance indicators (KPI) are used in QDAS to monitor farm performance. Table 22 shows these indicators grouped under the three key business trait headings:

- Solvency
- Profitability
- Efficiency

A further business trait, liquidity, is essential to measuring a business's ability to meet short term debts. QDAS does not report on this business trait as it concentrates its efforts into the longer term business traits.

Why use KPI

Put simply, a KPI is a calculations used for measurement, comparison and evaluation. Their use eliminates many simple dollar value comparisons, which can often be misleading and confusing. They can also be used to identify problems and opportunities.

Table 22. Key performance indicators used in QDAS

Profitability

- Return on asset managed – %
- Return on equity – %
- Operating profit margin – %
- Dairy operating profit –$/cow

Solvency

- Equity% – %
- Debt to equity ratio

Efficiency - Capital

- Asset turnover ratio
- Total liabilities per cow – $/cow
- Interest per cow – $/cow

Efficiency - Production

- Feed related cost – c/L
- Margin over feed related costs – $/cow
- Total variable cost – c/L
- Gross margin milk – $/cow

Efficiency – Physical

- Litres of milk from home grown feed
- Production per cow – Litres
- Litres per labour unit

Profitability KPI used in QDAS

Profitability ratios measure the ability of the business manager to generate a satisfactory profit. These ratios are typically a good indicator of management's overall effectiveness in producing milk from the land and stock.

Return on asset managed - operational

This measures the profit generating capacity of the total assets managed by the business. It measures the farm's effectiveness in using the available total assets (owned, financed and leased). This does not include any capital (land and improvements) appreciation.

Calculation

(Dairy operating profit / Total assets managed) * 100

Return on asset managed – including capital appreciation

Return on assets managed including capital appreciation, measures the profit-generating capacity of the total assets of the business including the growth in the value of these assets. When large companies such as BHP report a RoA, they include the growth in the value of their assets.

Calculation

((Dairy operating profit + change in the value of land and improvements) / Total assets managed) * 100

Return on equity - operational

This KPI measures the return on the owner's investment in the business (not including any appreciation in the value of land or improvements). Interest costs, land lease and rent are deducted from the operating profit to make the calculation. It takes the investor's point of view and can be a good way to encourage further investment in a business; it also allows a comparison to be made with the returns available from external investments.

Calculation

(Net farm income / Equity) * 100

Return on equity (RoE) - including capital appreciation

This KPI takes the RoE operational, discussed above, and adds in the appreciation in the value of land and improvements.

Calculation

(Net farm income + change in the value of land and improvements) / Equity * 100

Operating profit margin

This calculation highlights the amount of profit retained after all expenses are paid except debt servicing and taxation payments. It is a measure of the effectiveness of operations to generate and retain profits from revenues. Depreciation and a management allowance are included as expenses in this profit KPI.

Calculation

(Dairy operating profit / Total gross farm income) * 100

Dairy operating profit per cow

Similar to the above calculation but is expressed as dollars per cow.

Calculation

Dairy operating profit / Number of cows

Solvency KPI used in QDAS

Solvency ratios indicate how the business is financed, eg by owner's equity or by external debt. Lenders of long-term funds and equity investors have an interest in solvency ratios. They can highlight:

- Possible problems for the business in meeting its long-term obligations
- Show how much of the business's capital is provided by lenders versus owners
- The asset liability statement will indicate to the lenders the potential risks in the recovery of their money
- The potential amount of long-term funds that a business can borrow.

This KPI is often referred to as the 'sleep at night' factor – how comfortable do you feel with the current debt level?

Equity%

Lenders see an increased risk associated with borrowing as this percentage figure falls below a predetermined or agreed figure. To assess the risk potential it is important to look at both the debt and the business cash flow.

Calculation

((Assets – Liabilities) / Assets) *100

Debt to equity ratio

This is another way of expressing equity.

Calculation

Liabilities / (Assets – Liabilities)

Efficiency KPI used in QDAS

When examining a business these KPI's are often the starting point in an analysis, however it is recommended that the emphasis should be on the first three business traits. Efficiency ratios show how well business resources are being used to achieve other KPI.

Efficiency - Capital

Asset turnover ratio (ATO)

This measures the amount of revenue generated per dollar of assets invested. It is a measure of the manager's effectiveness to generate revenues (capital efficiency). The calculation does not include any costs.

Calculation

Total gross farm income / Assets

Total liabilities per cow

A high value could indicate potential difficulties with both liquidity and solvency.

Calculation

Liabilities / Number of cows

Interest per cow

The total amount of dollars being paid in interest per cow is used to highlight one risk aspect for the business. Generally farms in a rapid development phase will have a higher figure than well established businesses.

Calculation

Total interest payments / Number of cows

Efficiency - Production

Feed related cost per litre

Feed related costs are variable cash costs and includes purchased as well as all home grown feed input costs.

Calculation

Total of all feed related costs / Milk sold

Margin over feed related costs per cow

Only the net milk receipts are used in this calculation, this avoids the fluctuations that occur in annual cattle sales.

Calculation

(Net milk receipts – Feed related costs) / Number of cows

Total variable cost per litre

In QDAS total variable costs are compiled under three headings – feed related, herd and shed costs.

Calculation

(Feed related + shed + herd costs) / Milk sold

Gross margin – milk only per cow

This highlights the milk production efficiency; the resulting dollars are available to pay fixed, financial, living and future development costs.

Calculation

(Net milk receipts – Total variable costs) / Number of cows

Efficiency - Physical

Litres of milk from home grown feed

Home grown feed includes grazed pasture, home produced hay and silage. QDAS uses milk conversion factors to calculate the milk from all feed sources including concentrates.

Calculation

The milk from home grown feed is expressed as litres per cow per day

Production per cow

In QDAS the milking cow numbers used in all calculations includes milkers plus dry cows. This implies each cow has a calf annually.

Calculation

Milk sold / Number of cows

Litres per labour unit

The inference is made that as margins have reduced, technology should be used to gain efficiency. The number of cows milked per labour unit will impact on profitability.

Calculation

Total litres of milk / Number of labour units (paid + unpaid)

General comments

Many of these 15 KPI are representative of KPI that are used in most business reporting. A great number of additional KPI can be calculated from the vast amount of data collated in QDAS if and when required.

Other measures are important when examining an individual plan especially liquidity traits eg cash surpluses. Environmental KPI and other sustainability considerations are also important.

The change in net worth is also an important indicator for every farm owner, and should be calculated regularly.